The Claims

1. (Currently amended) In an ultrasound machine for generating an image responsive to moving structure within a region of interest of a subject by displaying at least one color characteristic corresponding to a movement parameter of said structure, apparatus for mapping said color characteristic comprising:

a front-end arranged to transmit ultrasound waves into said structure and to generate received signals in response to ultrasound waves backscattered from said structure in said region of interest over a time period;

a processor responsive to: (i) said received signals to generate a set of parameter signals representing values of said movement parameter within said structure during said time period, (ii) a distribution of said set of parameter signals, and (iii) a mapping algorithm to generate a set of color characteristic signals representative of said values of said movement parameter, wherein said mapping algorithm comprises a mapping function formed by generating a cumulative total of a frequency of occurrence of said values of said movement parameter, and normalizing the cumulative total to a color map, wherein said mapping function is used by said processor as a non-linear transfer function between said values of said movement parameter and said set of color characteristic signals; and

a display arranged to display a color representation of said moving structure in response to said set of color characteristic signals.

2. (Original) The apparatus of claim 1 wherein said moving structure comprises cardiac tissue.

3. (Original) The apparatus of claim 1 further comprising a user interface arranged to enable an operator to select said region of interest from said image on a monitor.

4. (Original) The apparatus of claim 1, wherein said movement parameter comprises one of velocity and strain rate.

5. (Original) The apparatus of claim 1, wherein said color characteristic comprises hue.

6. (Original) The apparatus of claim 1, wherein said time period comprises at least a portion of a cardiac cycle.

7. (Original) The apparatus of claim 1 wherein said distribution of said set of parameter signals comprises a histogram representing frequency of occurrence of said values of said movement parameter.

8. (Original) The apparatus of claim 7 wherein said mapping algorithm generates a mapping function comprising a cumulative total of the occurrence of said values of said histogram.

9. (Original) The apparatus of claim 8 wherein said mapping algorithm further comprises normalization of said cumulative total to a domain of a color characteristic legend.

10. (Original) The apparatus of claim 8 wherein at least one of said histogram and said mapping function is weighted.

11. (Currently amended) In an ultrasound machine for generating an image responsive to moving structure within a region of interest of a subject by displaying at least one color characteristic corresponding to a movement parameter of said structure, a method of mapping said color characteristic comprising:

transmitting ultrasound waves into said structure and generating received signals in response to ultrasound waves backscattered from said structure in said region of interest over a time period;

generating a set of parameter signals representing values of said movement parameter within said structure during said time period in response to said received signals;

generating a set of color characteristic signals representative of said values of said movement parameter in response to: (i) a distribution of said set of parameter signals and (ii) a mapping algorithm, wherein the mapping algorithm comprises generating a cumulative total of a frequency of occurrence of said values of the movement parameter, and normalizing the cumulative total to a color map

using a mapping function of the mapping algorithm as a non-linear transfer function between said values of said movement parameter and said set of color characteristic signals; and

displaying a color representation of said moving structure in response to said set of color characteristic signals.

12. (Original) The method of claim 11 wherein said moving structure comprises cardiac tissue.

13. (Original) The method of claim 11 and further comprising enabling an operator to select said region of interest from said image.

14. (Original) The method of claim 11 wherein said movement parameter comprises one of velocity and strain rate.

15. (Original) The method of claim 11 wherein said color characteristic comprises hue.

16. (Original) The method of claim 11 wherein said time period comprises at least a portion of a cardiac cycle.

17. (Original)The method of claim 11 wherein said distribution of said set of parameter signals comprises a histogram representing frequency of occurrence of said values of said movement parameter.

18. (Original) The method of claim 17 wherein said mapping algorithm generates a mapping function comprising a cumulative total of the occurrence of values of said histogram.

19. (Original) The method of claim 18 wherein said mapping algorithm further comprises normalization of said cumulative total to a domain of a color characteristic legend.

20. (Original) The method of claim 18 wherein at least one of said histogram and said mapping function is weighted.

21. (Previously presented) The apparatus of claim 1, wherein said color representation of said moving structure in response to said set of color characteristic signals uses a full dynamic range of the color map, wherein said full dynamic range of the color map includes a continuous range of color hues from red to violet.

22. (Previously presented) The method of claim 11, wherein said color representation of said moving structure in response to said set of color characteristic signals uses a full dynamic range of the color map, wherein said full dynamic range of

the color map includes a continuous range of color hues including red, orange, yellow, green, blue, and violet.